

Position Paper:

Upgrading to ArcGIS 8.X

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Developed by the NPS GIS Program

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A Word About the DOI ESRI Enterprise License Agreement

As of December 18, 2002, the National Park Service is a signatory to the Department of Interior ESRI Enterprise License Agreement (ELA), allowing all GIS users within the agency free access to many ESRI software products. This includes ArcInfo 8.x, ArcView 8.x single use, and most of the commonly used extensions. **NPS GIS users are required to use the ELA** whenever possible to obtain ESRI software.

Upgrading your GIS Functionality

ESRI continues to provide two different approaches for GIS Software. The first approach, ArcView 3.x, is the standard GIS desktop application and will continue to be supported for an indefinite period. The second approach, and current focus, is a scalable suite of software applications called ArcGIS. This suite includes ArcView 8.x, ArcEditor 8.x, and ArcInfo 8.x as well as other new combined extensions.

ArcView 3.x

ESRI's current version of their 3.x product is ArcView 3.3. The GIS Theme Manager tool (developed by the Alaska Support Office) continues to operate in this environment, as the version is still based on Avenue programming.

ArcGIS 8.x

ArcGIS includes a standard set of components called ArcGIS Desktop and is comprised of ArcMap, ArcCatalog, and ArcToolbox. ArcMap gives you the graphical user interface for editing GIS data and laying out map products. ArcCatalog includes the ability to help you organize and manage your GIS data as well as the functionality to create and maintain your geospatial metadata. ArcToolbox provides a standard interface for accessing geoprocessing tools.

For more information see the ESRI White Paper: What is ArcGIS?
http://arconline.esri.com/arconline/whitepapers/ao/What_is_ArcGIS.pdf

ArcGIS User License Options & Key Codes

User License options

Option One: Continue to operate in an ArcView 3.3 environment. This software suite may be discontinued by ESRI in the next 2-3 years.

Option Two: Upgrade from ArcView 3.3 to ArcView 8.x with one of two license types.

1. Single Use licensing limits the use of the software to a single computer and will only work with ArcGIS single use extension products.
2. Concurrent use licensing allows for use of the software on many different computers with the license manager tracking the number of ArcView licenses concurrently running. This is the preferred license type.

Option Three: Upgrade from ArcView 3.x (or ArcView 8.x) to ArcInfo 8.x. This provides full functionality for high-end GIS users, but is not recommended for casual or infrequent GIS users. Check with your regional or WASO GIS coordinator first.

Key Codes

All ArcGIS keycodes regardless of whether they are ArcView, ArcEditor or ArcInfo are run under the same license manager. There is no need to get new key codes unless you choose to change your existing license options.

NPS Recommendations for Park Units

Questions to ask yourself prior to upgrading GIS software

Question 1: Why wait to upgrade to ArcGIS 8.x?

- (1) ArcGIS 8.x is big, 2 gb in a full installation. Do you have the hardware to handle this? Do you have this much space to spare? Refer to Attachment 1 for details on computer specifications.
- (2) Many ArcView 8.x functions are not backward compatible. Once you upgrade your ArcView projects to ArcView 8.x you cannot use them in ArcView 3.x, so it makes sense to wait until the kinks are worked out (by someone else) before you place your GIS life in its hands. Note that the individual GIS data formats (i.e., coverages and shapefiles) are mutually compatible.
- (3) Avenue scripts, and applications like the GIS Theme Manager (formerly the Alaska Browser) have to be entirely re-written for ArcGIS 8.x. Until these are re-written you have to do without them.
- (4) Bugs – As with any change in software architecture, bugs can be anticipated.

Question 2: Is a GIS transition/upgrade in your budget?

- (1) Evaluate total cost of software ownership. As you consider your options, you must evaluate not only your ability to make the initial software purchase, but also to pay annual software maintenance fees. Costs of upgrading and maintaining your installed software can be rather expensive depending on the number and types of software licenses required for your park or program.
- (2) Does your budget support hardware upgrades as well as training classes?

Recommendations

- Users with advanced GIS skills, hardware resources, and who are capable of their own technical support, may wish to go ahead and migrate and begin using ArcView 8.x. Only

migrate if you have the necessary hardware, have purchased right to call for ESRI technical support, and can afford 8.x training classes. A free on-line course “Migrating to ArcView 8.x” is available on ESRI’s Virtual Campus: campus.esri.com

- For development activities (custom scripts and specialized programs), it is recommended that any new applications be developed in ArcGIS 8.x and that only minor modifications or very small new script development occur within ArcView 3.x.
- Should you decide to upgrade to ArcGIS 8.x, it is in your best interest to maintain a copy of your old GIS and software (ArcView 3.x). This will protect against loss of data or functionality, provide an alternative solution to upgrade problems, and supports learning the new system in a low risk environment.
- Anyone interested in upgrading to ArcGIS 8.x must use the ELA if possible. Distribution of software through the ELA is handled through regional technical support centers. Contact your regional GIS coordinator for further information about acquiring software.

Notes

- NPS Regional Technical Support Centers are currently learning ArcGIS 8.x and can only provide limited technical support for ArcGIS 8.x. Many parks have proceeded with the transition to 8.x and have insights worth considering.
- The new ArcGIS Spatial Analyst is comprised of the **previous** ArcView Spatial Analyst and ArcGRID functionality. Additionally, The new ArcGIS 3D Analyst is comprised of the **previous** ArcView 3D Analyst and ArcTIN functionality.
- If you decide to upgrade from ArcView 3.x to ArcView 8.x, you are strongly encouraged to use the concurrent license option. ESRI representatives have hinted that single use ArcView 8.x licenses may be phased out.

National NPS Support of the ArcGIS 8.x Products

The transition to ArcGIS 8.x products has a relatively short history, and ESRI plans to support ArcView 3.x for the foreseeable future. NPS Regional Technical Support centers are not yet prepared to provide comprehensive technical support for ArcGIS 8.x. However, several parks and central offices are currently evaluating ArcView 8.x. Additionally, there are 10 NPS GIS Specialists who have right to call through the ESRI (USGS) BPA. These individuals are listed at <http://www.nps.gov/gis/contacts.htm#esri> and can be contacted to follow-up on any ESRI related question that you may have.

- The NPS GIS support structure needs time to use ArcGIS 8.x before they can fully support park users.

- The GIS Theme Manager (ArcView 3.x extension) will be upgraded after the migration implications have been assessed and the Alaska Support Office has evaluated functionalities. Several of the GIS Theme Manager features are included in ArcView 8.x, and others will need to be evaluated for possible conversion from ArcView 3.x Avenue scripts to ArcView 8.x Visual Basic for Applications program code.
- Other existing Avenue scripts will need to be evaluated for conversion to ArcView 8.x VBA code. Conversions will be planned and scheduled after a cost benefit review and as funding permits.

Data Model Issues (geodatabase, Coverages, or Shapefiles?)

NPS GIS Specialists are just beginning to evaluate the geodatabase environment. Limited NPS support exists at this time for implementing the geodatabase structure. Information about the development of geodatabases will soon be listed at <http://www.nps.gov/gis/>. Geodatabase models for types of data such as forestry, maintenance, land survey and boundaries are currently in development by ESRI and other federal agencies.

Key steps that must be addressed in order to successfully convert to the geodatabase environment include: clean up of existing data directory structure; document existing coverage or shapefiles (metadata); develop a data model of your GIS data prior to geodatabase implementation; determine necessary rules to implement within the geodatabase structure; and conversion of shapefiles or coverages to the geodatabase. Additional considerations include the use of Oracle and ArcSDE to successfully handle the geodatabase link or the use of personal geodatabases.

Important Note: ESRI intends to drop support for editing coverages in ArcMap in ArcGIS 8.3. Coverage edits will then have to be performed in ArcWorkstation.

ArcView 3.x can utilize shapefiles and coverages, but has the ability to edit only shapefiles.

ArcGIS 8.x can utilize shapefiles, coverages, or geodatabases.

- ArcView 8.x can utilize shapefiles, coverages, or geodatabases, but only has the ability to edit shapefiles and personal geodatabases.
- ArcEditor includes the ability for editing shapefiles, personal geodatabases, and SDE geodatabases.
- ArcInfo adds advanced geoprocessing tools.

If you are interested in adopting a personal geodatabase environment, ESRI offers several training opportunities. For more information on geodatabases, see <http://www.esri.com/software/arcgis/geodatabase.html>

Acquiring ESRI GIS Software

There are four ways to acquire ESRI GIS software:

1. Using the ELA; (this method is mandatory unless a waiver is obtained from regional or WASO GIS coordinator)
2. Through the GSA schedule
3. Through software resellers or
4. Directly from ESRI

Purchase or upgrade costs depend on the contract structure and how you purchased your original license.

GSA schedule

The GSA schedule has been modified to include the ArcGIS 8.x products. The GSA schedule can be found at on the ESRI web site under the Federal Users section at

<http://gis.esri.com/federalgsa/check.cfm>

Purchasing GIS software from Resellers or directly from ESRI

Park units who bought ArcView 3.x products from software resellers or directly from ESRI may continue to use this mechanism for 3.x purchases. The website for ESRI has direct pricing for all ESRI products and upgrades at <http://www.esri.com/software/arcgis/arcview/purchase.html>

If you want information regarding software resellers that can be found at the ESRI website, under the Partners Section at <http://www.esri.com/partners/index.html>

How to Learn More About ArcGIS 8.x

- ESRI White Paper: What is ArcGIS?
(http://arconline.esri.com/arconline/whitepapers/ao/What_is_ArcGIS.pdf)
- *Getting to Know ArcGIS Desktop: Basics of ArcView, ArcEditor, and ArcInfo* (includes 180 day ArcView 8 software) available from the ESRI GIS Store (www.esri.com/gisstore).
- ArcGIS Geodatabase (<http://www.esri.com/software/arccgis/geodatabase.html>)
- ArcGIS 8.x rollouts in your area
- ESRI website (www.esri.com)
- ESRI online, virtual campus free course (Migrating to ArcView 8.x)
- ArcUser & ArcNews publications
- Contact NPS GIS support staff at the regional and national levels

Attachment 1: Computer Specifications

Listed below are two installation variations:

ArcView 3.x:

Operating system – Windows 98, Windows NT SP5 or Windows 2000
Processor – Pentium® II, 300 MHz
RAM – 64 MB
Hard disk space – 135 MB

Full ArcGIS 8.1 (Minimum):

Operating system – Windows 2000 or Windows XP
Processor – Pentium® 4, 1+ GHz
RAM – 1+ GB
Free Hard disk space – over 10 GB (allocate at least 5 GB of virtual memory)
Open GL graphic/video card needed for 3D Analyst extension